

## Abstract

The present invention relates to a multitube fixed bed reactor and the use of such a reactor for carrying out catalytic gas-  
5 phase reactions, in particular for carrying out exothermic and endothermic catalytic gas-phase reactions such as the preparation of phthalic anhydride (PA), acrylic acid, methacrylic acid (MAA), acrolein, maleic anhydride (MA), glyoxal, phosgene, hydrocyanic acid or vinyl formamide (VFA). In a relatively large multitube reactor in which a large amount of heat of reaction is generated owing to the numerous catalyst tubes (17) and has to be removed,  
10 it is proposed that the ratio of tube spacing  $t$  to external tube diameter  $d_a$  be made dependent on the reactor diameter or on the external tube bundle diameter  $d_{RBa}$ . At an external diameter of the catalyst tube bundle (18) of more than 4 meters, a ratio of tube spacing  $d$  to external tube diameter  $d_a$  of at least 1.3 is preferred.

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